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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,935	12/01/2005	Satoshi Furuta	4700.P0320US	6397
23474 7590 07/30/2009 FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631				
EXAMINER KATAKAM, SUDHAKAR				
ART UNIT 1621		PAPER NUMBER		
MAIL DATE 07/30/2009		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/558,935

**Applicant(s)**

FURUTA, SATOSHI

**Examiner**

SUDHAKAR KATAKAM

**Art Unit**

1621

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,10,12,14-16,18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,10,12,14-16,18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Status of the application*

1. Receipt of Applicant's Remarks and Arguments filed on 24<sup>th</sup> April 2009 is acknowledged.
2. Applicants' arguments for the previous rejection are not found persuasive and as such, the rejection has been maintained for the reasons of record made on 21<sup>st</sup> Jan 2009.

### *Response to Arguments*

3. Applicant's arguments filed on 24<sup>th</sup> April 2009 have been fully considered but they are not persuasive.

*The examiner acknowledges applicants' argument that the claimed invention requires the steps of bringing a starting material ester in a liquid phase state and an alcohol in a vapor-phase state into contact with a solid acid catalyst consisting of either an amorphous zirconium oxide and aluminum oxide, an amorphous zirconium oxide and phosphorous oxide or an amorphous zirconium oxide and titanium oxide.*

The examiner contends, however that **Ginosar et al** teach a process for reacting organic compounds having the generic formula  $R_1COOR_2$  with short chain ( $C_1$  to  $C_4$ ) alcohols in a single critical fluid phase medium over an acidic or basic catalyst to produce alkyl esters. **Ginosar et al** also, suggested use of "alcohol steam". The meaning of steam is vapor. Therefore, **Ginosar et al** read the instant claims.

With regard to the catalysts, **Ginosar et al** teach a catalyst, for their transesterification process, such as non-crystalline inorganic oxides such as alumina, oxides of phosphorus, zirconium dioxide, as well as mixtures of the above group.

**Bayenes et al** teach, in an analogous process, a catalyst comprising at least one silicate of the group IVB elements, and the said silicates can either be crystalline silicates or amorphous silicates. Said group IVB consists of the elements titanium, zirconium, hafnium etc., and of these elements especially titanium and zirconium are preferred, whereby the best results are obtained with titanium and the actual choice of the catalyst, that is crystalline or amorphous, type of active element and the actual structure depends on the type of reaction. Catalyst contains 1 to 60% of group IV B element, calculated as metal.

The examiner acknowledges applicants' argument that the amorphous catalyst of the present invention having the specified components in the specified compositional range exhibited high conversion rates and enabled the production of the target esters with a good efficiency as compared to the catalysts which contain partially crystallized components.

The examiner contends, however, that **Bayenes et al** clearly suggested the form of catalyst either crystalline or amorphous form in their process. Please also note that these forms and their use in the chemical process are well established in the art. Absent an explicit definition, the limitation is interpreted broadly meets the art. With regard to the applicants' comparative experiments and statements on the difference in results, please note that the mere statements by the inventors are not supported by

evidence. These should be in the form of either a declaration or an affidavit. Applicant is invited to provide a showing which is commensurate in scope with the claimed invention that clearly demonstrate that the claimed amorphous form over the crystalline form result in some unexpected property over the prior art.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 3, 10, 12 and 14-15 are again rejected under 35 U.S.C. 103(a) as being unpatentable over **Ginosar et al** (US 6,887,283) for the reasons of record as set forth in the office action on 21<sup>st</sup> Jan 2009.

7. Claims 16 and 18-19 are again rejected under 35 U.S.C. 103(a) as being unpatentable over **Bayenes et al** (US 5,508,457) for the reasons of record as set forth in the office action on 21<sup>st</sup> Jan 2009.

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136 (a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no even, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

#### ***Conclusion***

9. No claim is allowed in absence of a clear delineation of the claims from the prior art and a side by side showing of unexpected results commensurate in scope of the claims.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhakar Katakam whose telephone number is 571-272-9929. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sudhakar Katakam/  
Examiner, Art Unit 1621

/Peter G O'Sullivan/

Primary Examiner, Art Unit 1621